GEOGRAPHIC NEWS BULLETINS

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THE NATIONAL GEOGRAPHIC SOCIETY

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NOTE TO TEACHERS: This is the first of the GEOGRAPHIC NEWS BULLETINS for the school year 1940-41. No BULLETINS were issued during the summer months. See important announcements following Bulletin No. 3 and at the bottom of this page.

Photograph by Morel

THEY HELP MAKE SWISS A SYNONYM FOR CHEESE

Swiss herders spend the summer in their mountain huts, tending their herds, milking, and making cheese daily. Heavy bells around the cows' necks tell where the herd is straying. The special frame, supported on a man's head and shoulders, is designed for carrying the disk of cheese. Small Switzerland holds a prominent place in the world's great dairying industry (Bulletin No. 5).

NOTICE: SUBSCRIBERS WHO RECEIVE A RENEWAL BLANK WITH THIS ISSUE of the GEOGRAPHIC NEWS BULLETINS are notified that their subscriptions expire with this issue. It is not always possible to supply back issues of the BULLETINS, and it is therefore recommended that subscribers promptly request renewal in order to be sure of a complete file.

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General Headquarters, Washington, D. C.

London Is One of World's Best Air Targets

THE "Sovereign of cities," the Empire capital for one-fifth of the world's people and one-fourth of the land area of the earth, the center of an old culture for 200,000,000 English-speaking people—London has commanded world attention again during its spectacular bombardment from the air. The old town of Dick Whittington and London Bridge, the scene of William Shakespeare's first nights and Geoffrey Chaucer's first editions, the historic home of royal Henrys and Charleses and Georges through turbulent centuries has proved to be the most difficult city in the world to defend—because of its size.

Of the five greatest cities on earth, London presents to an enemy bomber the biggest bull's-eye, for it is wider than any two of the others together.

Defenders Must Protect Largest Area

Because its clay soil makes difficult the construction of towering skyscrapers, its growth has spread out horizontally to cover 692 square miles, exceeding the combined areas of New York City, Chicago, and Philadelphia. Berlin is only half as vast a target, Paris less than a third as large.

London's great lateral expansion means that a bomb dropped within a 15-mile radius of Charing Cross or the Towers of Parliament hits an urban population of 11,855 per square mile. In Berlin the population density is greater—12,704—but an enemy must penetrate closer to the center of the city to reach the congested areas. For more than three miles around Westminster, the central core of London supports 37,580 people per square mile.

Another factor in London's vulnerability is the new growth on its outer borders, where an increase of a million people in the decade following the first World War developed new suburbs and new factories in the most exposed locations. There are more than 150 suburban areas linked with London by bus and street car service. The government arsenal at Woolwich is 9 miles east of London's center, the Enfield rifle factory 11 miles north.

Home of 18 Per Cent of Nation's People

Many of the city's vital industries, such as oil refineries and blast furnaces, are spread along the banks of the Thames where raw materials can be delivered by water transportation. Thus the winding Thames guides attackers from its mouth 50 miles inland to London's heart, to the world's most extensive dock works, to the power plants, to the Ford auto plant at Dagenham, the cement works at Northfleet, and other strategic riverside industries.

Eighteen per cent of Great Britain's inhabitants live in London. In addition to being the administrative, financial, and cultural center, the capital city is chief provider as well. London handles one-third of all Britain's foreign trade, and receives more than 40 per cent of the 60 million tons of food and raw materials which the nation imports annually (illustration, next page). No other port in England normally has facilities for handling such huge imports—70 per cent of the country's meat supply, 33 per cent of the oil, 27 per cent of the timber, 44 per cent of the wool, and 56 per cent of the rubber.

Starting above the city on the hairpin-twisted Thames, the port activities of London continue downstream to Tilbury, near the mouth of the river. They occupy more than 4,000 acres of land and some 45 miles of quays.

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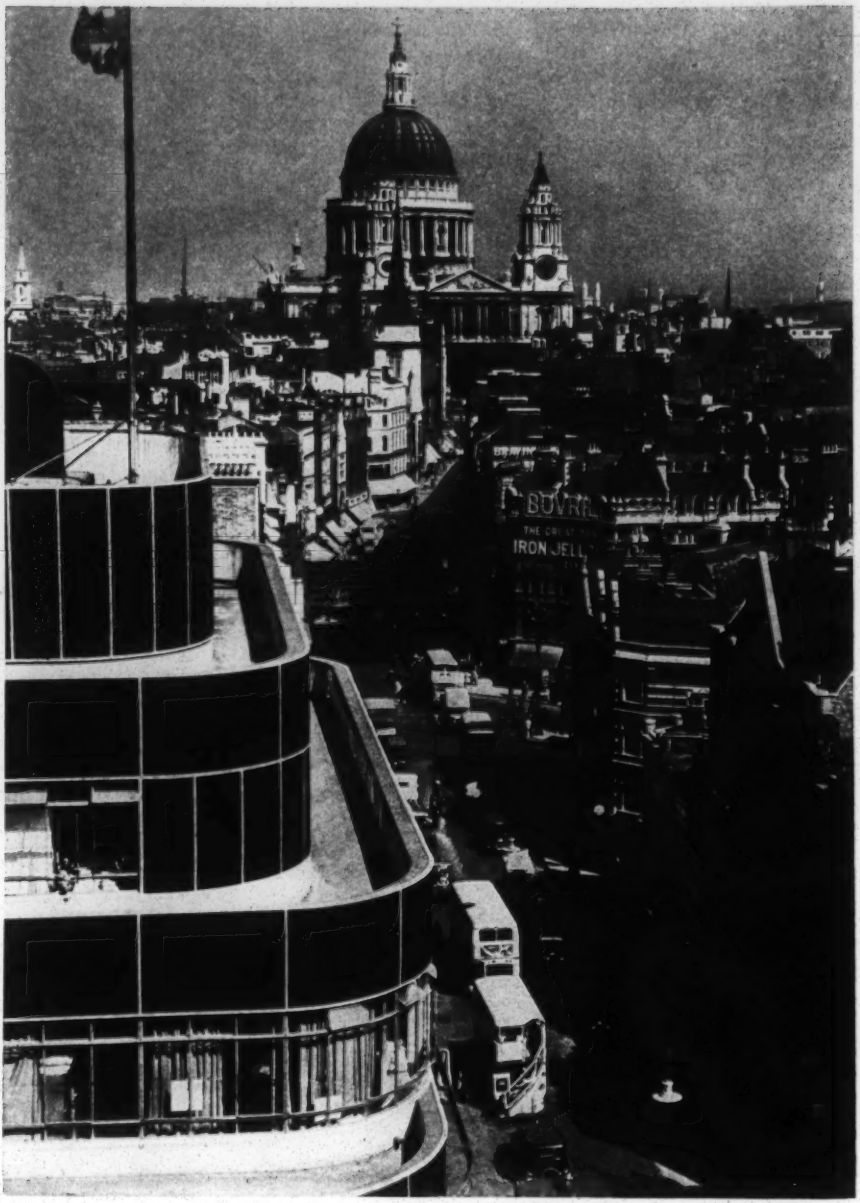

Photograph by Maynard Owen Williams

BIGGEST NEWS NOW HAPPENS WITHIN EARSHOT OF BIGGEST NEWS CENTER

On Fleet Street, less than a half-mile long, stand the office buildings of the international "newspaper row," whose newspapers and press associations make it a busier news center than any equal area elsewhere in the world. The black glass office of the *Daily Express* (left foreground) overlooks such historic spots as the Cheshire Cheese Inn and the haunts of Oliver Goldsmith and Dr. Samuel Johnson. The dome of St. Paul's marks the famous "Parish Church of the British Empire," where bombs have threatened the tombs of such British heroes as Wellington and Nelson (Bulletin No. 1).

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England's Invasion Threat Holds Headlines for Weeks

SHADES of Napoleon, King Philip of Spain, and William the Conqueror have emerged from the history books this fall and deployed their ghostly forces across the map of modern Europe, as England's precautions against imminent invasion revived memories of the past.

Before 1066, England was invaded many times, by Romans, Saxons, Danes, Norsemen, and others, but after the Norman conquest there were no further successful incursions. Numerous expeditions, however, were ambitiously launched against the little kingdom, all of which turned out to be round trips—for the defeated survivors. John Paul Jones, the naval hero of the American Revolution, and a French prince who actually ruled England for a year are among the attackers who rushed against England and then backed away.

Weakened by "Fifth Column," Defeated by 1066 Attack "From the Air"

September 28 was England's day of destiny in 1066. William, Duke of Normandy, that day landed on the Sussex coast with his fleet of 3,000 boats, which had been waiting a month on the shores of Normandy for a good wind across the Channel to England. The invasion proceeded in leisurely tempo. For two or three days the Normans unloaded men and horses, arrows and longbows, heavy coats of mail and lances. Near Hastings, William made camp, guarding it with prefabricated wooden watch towers floated over from Normandy. Then the invaders pillaged the country for a total of 16 days before meeting England's home guard in battle.

For King Harold II, who had mounted the English throne less than ten months before, was 250 miles away on the northeast coast having Fifth Column trouble. His brother Tostig, supplied with a fleet by William of Normandy and reinforced by Haardraade, Norway's king, had ravaged northern river valleys and captured York. Harold routed these forces only three days before the Norman invasion.

Drawn up outside Hastings (illustration, next page) on October 14, in a camp surrounded by trenches and palisades, Harold's long-haired Saxon soldiers formed a wall by interlocking their shields and prepared to wield their battle axes against the attackers. William's crafty Norman archers tilted their longbows into the air, so that the arrows soared high and fell on soldiers behind the shield-wall. Harold II received an arrow in his right eye and was killed. William, thereafter the Conqueror, marched on to London and the throne.

Ten Years of Attack from Every Direction

The only more recent invasion that was even partly successful came by invitation. Furious at King John's evasion of their brand-new Magna Charta, British lords invited Prince Louis of France to sail over and become their king. His fleet and army were welcomed into London in 1216. When fugitive King John died of indigestion four months later and his 10-year-old son offered no opposition to the Magna Charta, the pro-French lords became pro-British again, drove Louis out.

Small-scale attacks on England were so numerous in the reign of Henry IV that Shakespeare assigned to him the famous lament, "Uneasy lies the head that wears a crown." Within ten years, 1400-1410, England was attacked from every direction. A French fleet swarmed around the eastern shores, raiding here and there along the coast. Scottish clansmen trooped in from the north. The French repeatedly pillaged southern ports on the English Channel—Plymouth, Portland,

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The London waterfront is vitally different from that of New York, where ships are handled at piers extending into the open rivers. Because of the great rise and fall of tides in the Thames, it has been necessary to gouge out huge basins called "wet docks," adjoining the river, and to provide channels, protected by water gates, leading into them. The wharves and quays line the basins in which a high water level can be maintained even at low tide.

London Dock and the East and West India Docks opened in the early 1800's. The royal "Big Three," Victoria, Albert, and King George V Docks, began operations in 1855, 1880, and 1921 respectively. These three have a water area of nearly 250 acres, the world's most extensive inclosed docks.

London's Houses of Parliament, like many other historic landmarks in the British capital, present a big bull's-eye at which to aim bombs. Covering eight acres, the buildings include the House of Commons and its offices, the House of Lords, residences of officials, the ancient Westminster Hall, and St. Stephen's Chapel. They hold more than 500 apartments, 100 staircases, and 11 courtyards.

Note: Additional descriptions and pictures of London will be found in "Along London's Coronation Route," *National Geographic Magazine*, May, 1937; "As London Toils and Spins," January, 1937; "Great Britain on Parade," August, 1935; "Vagabonding in England," March, 1934; "Some Forgotten Corners of London," February, 1932; "Highlights of London Town" (color insert), May, 1929; and "London from a Bus Top," May, 1926.

See also in the GEOGRAPHIC NEWS BULLETINS: "London Guards Newsy Fleet Street, Avenue of Words," April 17, 1939; "London's 'Underground' Deals in Astronomical Figures," February 27, 1939; "The World Pours Food Into London Port," March 14, 1938; and "Covent Garden Market: London's Flower, Vegetable, and Fruit Basket," December 13, 1937.

Bulletin No. 1, October 7, 1940.

Photograph by Maynard Owen Williams

THE THAMES MAKES LONDON A SEAPORT 50 MILES FROM THE SEA

One of the busiest river ports in the world, London is able to receive seagoing vessels at its extensive docks, where cargoes are transferred to barges for delivery directly to riverside industries and warehouses. Beyond the forest of derricks, the Tower Bridge is visible. Roman coins found in the river bed show that the Thames has been a main artery of commerce for 20 centuries.

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King Michael's Romania Now 36 Per Cent Smaller

ROMANIA'S Michael, now king again, ascends the throne for the second time to rule a kingdom less than two-thirds as large as it was during his three-year reign which terminated a decade ago.

The colorful kingdom at the mouth of the Danube, which attributes its language and name to Roman conquerors led by Emperor Trajan in 103 A.D., was for two decades the largest of the Balkan countries and the ninth largest in Europe, ranking in area next to Italy. Its size hitherto (113,884 square miles) resulted chiefly from large blocks of territory added by terms of the World War's peace treaties, uniting under a Romanian monarch the Romanian minorities (as well as non-Romanian peoples) formerly included in the Austro-Hungarian and Russian empires. The coastal strip known as the Dobruja, between the Danube and the Black Sea, had been acquired from Bulgaria by force of arms in 1913.

Reduced Almost to North Dakota's Size

But land losses in the summer of 1940 have chipped off border regions until the country's area is made smaller by approximately 41,300 square miles, or 36 per cent. This reduction brings the size to about 72,600 square miles, little larger than North Dakota.

Romania's losses are Hungary's, Russia's, and Bulgaria's gains. The greatest single change resulted from the occupation by the U.S.S.R. in July, 1940, of the great wedge of Bessarabia on the northeast (illustration, next page) and the northern 4,000 square miles of the Bucovina along Romania's north central frontier. Somewhat less extensive was the loss to Hungary, in September, of a little less than half of Transylvania, Romania's northwestern section. To Bulgaria on the southeast, Romania at the same time ceded the southern part of the Dobruja region.

Of the more than nineteen and a half million subjects over whom his father ruled two months ago, the new king inherits approximately thirteen million. For with the territory lost have gone more than six and a half million people. This lost population is about equal to that of Texas. The greatest population transfer was that to the U.S.S.R., which took away between a fifth and a sixth of Romania's people; Romanians constituted the largest national group, or about half.

SUMMARY OF CHANGES IN ROMANIA'S LAND AND PEOPLE

	Square Miles	Approximate Population
To U.S.S.R.	21,000	3,760,000
To Hungary	17,400	2,370,000
To Bulgaria	2,880	406,000
Still Romanian	72,600	13,225,000

Note: Additional pictorial and descriptive material about Romania is contained in "Caviar Fishermen of Romania," *National Geographic Magazine*, March, 1940; "American Girl Cycles Across Romania," including a full-page map, November, 1938; "Spell of Romania," April, 1934; "Transylvania and Its Seven Castles," March, 1926. See also in the GEOGRAPHIC NEWS BULLETINS: "Dobruja: A Magnet for Black Sea Diplomacy," November 20, 1939; "Romania's Border Areas Coveted by Dissatisfied Neighbors," October 16, 1939; and "Germany Is Best Customer at Romanian Bargain Counter," May 1, 1939.

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Dartmouth, Hastings. Then with a "Trojan Horse" army of 8,000 Frenchmen, the Welsh attacked from the west but were driven off.

Sailing from France with forces raised there in 1557, young Thomas Stafford led an expedition into Yorkshire against Queen Mary, who shortly had him beheaded in London.

The next time invasion threatened, 20,000 home-guarding Britons stood watch along all coasts against the Spanish Armada, but the Spanish attack was called off on account of bad weather. In 1588 King Philip of Spain sent a vast fleet of 132 ships with 33,000 men to gain control of the English Channel so that a Spanish army could cross over from the Netherlands. Flaming fireships that Sir Francis Drake sent drifting up the Channel threw the Armada into confused flight and storms thereafter took heavy toll, so that only half of the fleet ever reached home.

Bonnie Prince Charlie, Scottish Pretender to the throne of England, with French backing, led his army of highlanders from Scotland in 1745 to Derby, 110 miles from London, before being turned back.

Perhaps not many Americans realize that the Revolutionary War naval hero, John Paul Jones, made a raid on Whitehaven, a British port on the Irish Sea just south of the Scottish border.

The next threat of invasion came in 1804 when Napoleon I assembled 100,000 men at Boulogne to cross to southeast England. An army was hurriedly recruited, and along the coast defense works were thrown up, remains of which can still be seen. But again the British Navy came to the rescue, by preventing the concentration of the French and Spanish fleets, which would have been necessary to protect Napoleon's crossing.

Note: A wall map, 29 x 35 inches, the "Modern Pilgrim's Map of the British Isles" may be obtained from the National Geographic Society's Washington, D. C., headquarters for 50 cents on paper (75 cents on linen). It shows places and regions famous in English literature and history, such as the site of the Battle of Hastings.

Bulletin No. 2, October 7, 1940.

Photograph by W. Robert Moore

ROMAN RUINS AND NORMAN TOWERS ARE MONUMENTS TO SUCCESSFUL INVASIONS

William the Conqueror used an old Roman structure at Pevensey for defense while strengthening his first toehold on England's shores. The crenelated battlements of Battle Abbey (above) he later raised on the site of his day-long fight with the Saxon forces of Harold II, near the town of Hastings.

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Defense Bases Bring New Land under American Flag

POSSIBLY the most important territorial change under the Stars and Stripes made during the forty years of the present century was the recent leasing of defense bases from Great Britain by the United States. Seven islands and a South American mainland spot will hereafter fly the American flag beside the Union Jack.

These newly acquired outposts of the American eagle give the United States an eastward-flung front line of defense which sweeps like an inverted question-mark from Newfoundland on the north, southwestward through Bermuda and the Bahamas, south to Jamaica, eastward to Trinidad and British Guiana, and northward again to St. Lucia and Antigua. From Newfoundland, the northernmost base, to British Guiana, the southernmost, is an airline distance of some 2,700 miles.

Base Only 2,000 Miles From Europe

1. Newfoundland (illustration, next page) is one of the most important of the base locations, guarding the northern approaches by air and water to Canada and the United States. The island extends for approximately 400 miles north and south across the Gulf of St. Lawrence, the widened mouth of the St. Lawrence River. Newfoundland's famous Botwood airfield lies about 2,000 miles southwest of Ireland, and 950 miles southwest of Greenland. Portugal's Azores Islands are 1,400 miles to the southeast, and Bermuda is 1,100 to the southwest.

2. The defense base at Bermuda, next to the south from Newfoundland, is within 1,000 miles or less of every important port on the Atlantic coast of North America, both in the United States and Canada. It is about 800 miles from Norfolk, New York, Boston, and the Nova Scotia ports. The only passenger airline now operating between the United States and Europe uses Bermuda and the Azores, 1,800 miles east, as stopping points between New York and Lisbon, Portugal. England lies more than 3,000 miles to the northeast. The United States is only one-fifth as distant, since Cape Hatteras is 640 miles west and slightly north.

Within 550 Miles of Panama Canal

3. The Bahama Islands group, over which the Duke of Windsor now presides, roughly 700 miles southwest of Bermuda, consists in all of more than 3,000 low-lying coral islands, islets, cays and rocks strewn over some 630 miles of ocean between Florida and Hispaniola (the island of Haiti and the Dominican Republic). The aggregate area is less than 4,500 square miles. Of the 68,000 people, about 20,000 are on the island of New Providence, which contains the capital and chief city, Nassau. The island nearest Florida is Bimini, about 60 miles east of Miami. The most historic is San Salvador (Watling Island) on the eastern fringe, where Columbus landed in 1492.

4. Jamaica, 500 miles south of the Bahamas, and on the southern side of Cuba, is one of the vital base locations because of its nearness to the Panama Canal, which lies about 550 miles to the south. It is the only one of the bases squarely within the Caribbean Sea; the others nearby lie on the outer fringe of that body of water. It is Britain's watchdog island beside the busy Windward Passage, shipping channel between the North Atlantic and the Panama Canal.

Because of wide interest in the United States' new defense bases, the GEOGRAPHIC NEWS BULLETINS will publish a series, of which this is the first, dealing with the new bases as well as the old ones outside the continental U. S.

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Photograph by Dorothy Hosmer

SOMETIMES RUSSIAN, SOMETIMES ROMANIAN—BUT ALWAYS FISHERMEN

The third boundary change in 128 years finds the men of Valcov, in Bessarabia, concerned with fish rather than frontiers. They go out in narrow rowboats on the muddy Danube to catch the sturgeon, whose roe is exported as the international delicacy, caviar. Their fishing gear, hundreds of hooks suspended fringelike a few inches apart from a main line, must receive careful sharpening, oiling, and drying. Romanian until 1812, Russian then until 1918, Romanian again until 1940, and now Russian again, Bessarabia contains enough of these bearded Russians and their families to make up a quarter of its population (Bulletin No. 3).

A Gift to Education—How Teachers May Co-operate

THE GEOGRAPHIC NEWS BULLETINS are a gift of the National Geographic Society to education. The only charge made is the nominal one of 25 cents a year, partially to cover postage and handling. This is the first issue of 30 numbers, each containing five illustrated BULLETINS, to be mailed weekly during the current school year. The BULLETINS report the geographic background of events of world importance.

Because these Bulletins represent a substantial gift to schools from The Society's educational fund, the expenses of advertising or circulation promotion—possible for a commercial publication—cannot be undertaken. The Society must rely upon supervisory officials and teachers to call them to the attention of their colleagues who might use them effectively. This should be done promptly so that applicants may be put upon the mailing list to receive the early issues.

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Commodities in the News: No. 3, Dairying Finds New Milky Ways

LITTLE Miss Muffet no longer sits on a tuffet eating her curds and whey, because she can have them made into a new dress or a hairbrush or a fountain pen. Industrial uses of milk and whey convert pints into plastic buttons, quarts into crystal-clear rubbery resin for insulation purposes, and gallons into yards of a casein-fiber cloth that feels and dyes like wool. In addition to the "wool-gathering" that goes on in the modern dairy, milk products enter into non-fattening potato chips, cheaper fudge, and richer vegetable soups.

But in spite of new developments, milk is now getting special attention because of its oldest use, as food. With the threat of war-borne famine darkening Europe, the nutrient value of every food is being considered from the point of view of underfed populations, and milk emerges as the champion hunger-fighter. A balanced diet in every swallow, it contains more nourishment than any other single food, with all of the six vitamins yet known thrown in for overflowing measure.

Buffalo Milk Nourishes India

The cream of the world's dairy crop is collected in the United States, where the green pastures and placid cows produce about 24 per cent of all the milk the world gets each year. Next to the blue-ribbon milk production of the United States stands Germany, as the world's second-ranking dairying nation.

The chief milkmaid of the Orient is ancient India, but the typical Indian "bossy" is a buffalo. In the homeland of the sacred cow, buffalo milk is more plentiful than that of cows and goats together. Elsewhere in the East, milk and dairy products are relatively scarce. Butter for Tokyo, for instance, is brought in from the Japanese island of Hichigo, 180 miles away.

The small thrifty countries of western Europe, by contrast, make a specialty of dairy farming, even on mountainous land where fodder and milk must be transported from one end of a sloping farm to the other by rope and pulley. Norway, for example, has almost half as many cattle as people, and by many years of selective breeding has developed such distinctive types as the half-pint Telemark cow, small in size but capable of producing seven times its weight in milk each year. Swiss skill in the dairy industries has made Switzerland an exporter of cheese, despite the fact that the small country supplies its own population with what is possibly the largest quantity of cheese eaten per capita in the world, more than 23 pounds a year. (The United States serves about 5 pounds to each inhabitant.) Denmark has led the world in the export of butter.

Ice Cream Gets Only Small Slice of Milk Output

The bovine population of the United States is predominantly Jersey in the south and Holstein in the north and west. Cherished in northern Germany and the Netherlands for possibly 2,000 years, the Holsteins were imported into America first while George Washington was President, and now they have their strongholds in the busiest dairy States in the Union. Some 81,000 Holstein-Frisians in the country are registered as purebred. The other leading dairy breeds are Ayrshire from Scotland, Brown Swiss from Switzerland, and Guernsey from the Channel Islands between England and France. Both Guernsey and Jersey cattle were once erroneously called Alderneys, because cattle from all the Channel Islands were exported through Alderney; but they later came to be known by their current

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5. Trinidad, close to the shore of Venezuela, serves as an "abutment" for the arc of Windward and Leeward Islands which enclose the Caribbean on the east. The island is 1,862 square miles in extent and has a population of 412,000. On the basis of production it is one of the most valuable of England's West Indian colonies. Its enormous deposit of natural asphalt, Pitch Lake, covers 114 square miles. As much as 10,000,000 barrels of petroleum per year has raised this comparatively small island at times to eleventh place in world production.

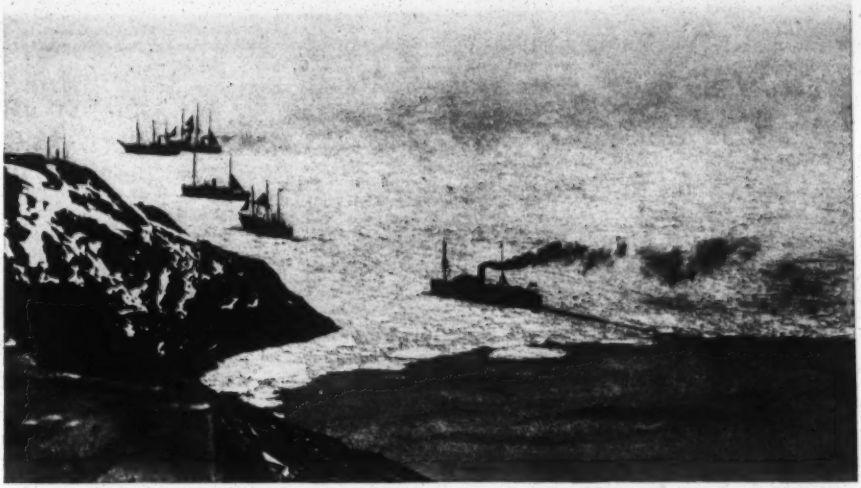
6. The southernmost of the defense bases will be located in British Guiana, Britain's only territory on the mainland of South America. It is some 1,450 miles east of the Panama Canal and about equidistant from the Canal and Natal on the projecting "shoulder" of Brazil. Extending to within 100 miles of the Equator, British Guiana lies between Venezuela and Surinam (Dutch Guiana).

7. St. Lucia, one of the Windward Islands only 200 miles north of the island of Trinidad, has an excellent harbor. Its area of 238 square miles supports a population of about 65,000, mostly negroes. This island is about 1,150 miles east of Panama, and faces Dakar, the westernmost point of Africa, about 2,600 miles east.

8. Antigua, in the northern half of the sweeping arc of islands that guards the eastern doorway to the Caribbean Sea, is about 200 miles north of St. Lucia and 260 miles east of Puerto Rico. Smallest of the West Indies islands obtained as U. S. bases, it is only about 12 miles long, with a total area of 108 square miles. Its population is little above 35,000. Antigua is a strategically-set watchdog on the route to Panama. It is the seat of government of Britain's Leeward Islands.

Note: The Society's map of the Atlantic Ocean, which appeared as a supplement to the July, 1939, issue of the *National Geographic Magazine*, shows all the base areas recently acquired by the United States from England, in addition to the naval bases of the United States and Great Britain already existing in the Atlantic.

Bulletin No. 4, October 7, 1940.



Photograph from Ernest Maunder

FOG AND ICE ARE NEWFOUNDLAND'S NATURAL DEFENSES

The sealing fleet, which is Newfoundland's picturesque source of income supplementing the fisheries, steams away from the open water (right foreground) of the sheltered harbor of St. Johns, and into the ice-covered North Atlantic. The ice is frequently so thick that boats must dynamite their way through it. Fog dimming the horizon is one of the weather factors which have hitherto kept Newfoundland from being a year-round air base.

names, after laws prohibited the interchange of breeding stock on the islands, to keep the breeds distinct.

Wisconsin, the milkiest State of all, alone produces as much milk as all the eleven western States together—nearly twelve billion pounds of milk, or one-and-a-third billion gallons. Minnesota ranks next in quantity, but the value of the dairy products of New York, and of Pennsylvania as well, exceeds Minnesota's. In the whole United States, in a recent year, all the milkmaids and milkmen together handled the staggering total of 107 billion gallons.

In all, there are some 25 million dairy cattle chewing their cuds down on the farm throughout the nation, with a value of more than $50 apiece. They supply the country with enough fresh milk to give more than 38 gallons to each inhabitant for his yearly supply, with some 15 pounds additional to store away as evaporated and condensed milk. The rest of their output reaches American tables principally as butter (illustration, below) and cheese, which together consume some 60 per cent of the milk output.

A relative newcomer to the list of dairy products is ice cream, which now enters big scale production and uses up nearly four per cent of the milk produced. July is the banner month for the ice cream harvest, when the average American consumes one-seventh of his yearly quota of two and one-fifth gallons.

The following articles in the *National Geographic Magazine* contain text references to and pictures of the dairying industry: "Country Life in Norway," April, 1939; "Guernsey, the Friendly Island," March, 1938; "On Goes Wisconsin," July, 1937; "August First in Gruyères" (Switzerland), August, 1936; "Royal Copenhagen, Capital of a Farming Kingdom," February, 1932; "Taurine World," December, 1925.

Dairy cattle are included among the domesticated and wild varieties described in The Society's 118-page book, *Cattle of the World*, which contains 24 illustrations in color and 72 in black and white. It can be obtained from The Society's Washington, D. C., headquarters for $1.50.

Bulletin No. 5, October 7, 1940.

Photograph by Clifton Adams

GRANDMOTHER'S CHURN ON A LARGE SCALE MAKES BUTTER BY THE HALF-TON

The primitive kitchen churn which used to produce a pound or two of butter with a hand-operated dasher has been put out of business to a great extent by the large mechanical creamery churn, which "rolls" out as much as 800 pounds of butter at once. This churn at Moorhead, Minnesota, plays its part in making the State the nation's second-ranking in volume of milk products. Throughout the United States, creameries produce more than one and a half billion pounds of butter, or enough for every person to eat 16½ pounds a year.